

SEVERE LOCAL STORMS, SEPTEMBER 1941

[Compiled by Mary O. Souder]

[The table herewith contains such data as has been received concerning severe local storms that occurred during the month. A revised list of tornadoes will appear in the United States Meteorological Yearbook]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
Sarasota, Fla., vicinity of....	1	5:30 p. m.	100	0	\$600	Tornado.....	Small shed completely demolished, 2 barns and small cottage somewhat twisted and a truck overturned. No crop loss; path 50 miles long.
Teton County, Mont.....	2		15		100,000	Heavy hail.....	Loss in wheat, peas, flax, oats, barley, corn and beets. Few windows broken; car tops torn; path 10 miles long.
Des Moines, Iowa.....	3	A. m.				Heavy rain, electrical.....	2 houses damaged by lightning; streets flooded; sewers inundated; traffic hampered.
Cassville, Wis.....	3	6 p. m.	88	0	1,000	Tornado.....	Storm moved from southwest to northeast. 2 persons injured; property damaged.
Wessington Springs, S. Dak., vicinity of.....	3	11 p. m.—Midnight	880		8,000	High wind.....	Property damage, \$5,000; crop loss, \$3,000; path 6 miles long.
Huron, S. Dak., and vicinity.....	3	11:15–11:55 p. m.	12		4,000	do.....	Property damaged.
Winterset and Peru, Iowa.....	3				2,000	Electrical.....	In Winterset an oil station was damaged by lightning and a man stunned. In Peru a house burned and telephone switchboard was damaged interrupting long-distance service.
Day County, S. Dak.....	4	Midnight–1 a. m.	11		20,000	High wind.....	Buildings wrecked; farm machinery damaged; some corn down.
Minneapolis, St. Paul, White Bear Lake, Centerville, Minn., and vicinity.....	4	12:17–12:33 p. m.	100	5	425,000	Tornado.....	The Soo Line R. R. shops demolished; about 200 freight cars overturned; 4 lake cottages wrecked and 36 cottages and other structures damaged; hundreds of trees uprooted; large brick schoolhouse partly destroyed; heavy metal signs badly twisted; large brick chimney toppled; many buildings unroofed, moved from their foundations, or otherwise damaged. Windows broken; billboards, signs, awnings, and radio tower down. Farm buildings demolished; poles and wires down and automobiles, airplanes, rowboats, and sailboats overturned. Corn was badly lodged; some livestock and poultry killed; about 50 persons injured. Path 30 miles long, but not continuous.
Wisconsin, western portion of State.....	4		150	1	142,500	Wind.....	Much damage occurred from Burnett County northeastward to Bayfield County. Roofs on 2 buildings at munitions plant at Braksdale blown off; windows blown in; telephone and electric lines down and many tree uprooted. In Milwaukee a metal chimney and electric lines down; small boats in the harbor torn from their moorings; 40 persons injured. Church struck by lightning and spire badly damaged.
Norfolk, Va.....	5	4:20 p. m.			1,000	Thunderstorm.....	Trees blown down, limbs and branches torn off; traffic tied up; air service halted and light service interrupted.
Harrisburg, Pa.....	5	P. m.				Wind.....	Property damaged.
Lancaster, Ohio, and vicinity.....	5				75,000	Thunderstorm.....	Principal loss in mustard crop; path 5 miles long.
Toole County, Mont.....	5	2 p. m.	12		25,000	Hail.....	Principal loss in mustard crop; path 48 miles long.
Glacier County, Mont.....	6	3 p. m.	15		34,000	do.....	Several small county roads and bridges washed out; basements of several houses flooded.
Friend, Nebr.....	6	8–9 p. m.	10		2,000	Excessive rain.....	Heavy hail broke windows; damaged automobiles and roofs and killed birds, as well as severely damaging crops, fruit trees and shrubbery along a line from Glenwood to Randolph. Heavy rain caused local flooding and loss in bottom-land crops. A railroad washout halted train service from Farragut to Hamburg from the 6th to 10th.
Glenwood, Tabot, Randolph, and Farragut, Iowa.....	6	P. m.			50,000	Hail and rain.....	Flooding of highways and basements; 3 short railroad tracks washed out; path 50 miles long.
Saunders, Sarpy and Douglas Counties, Nebr.....	6–7	8 p. m.–2 a. m.	120			Excessive rain.....	The storm developed a few miles northeast of Prairie City and moved almost due east past and to the north of Fairmount, Reasnor, Killduff, Sully, and Lynville in Jasper County and of Searsboro in Poweshiek County, disappearing in the vicinity of Evert in Poweshiek County. Buildings were damaged or destroyed and total crop loss on about 80 farms and 5 persons were injured. Loss in growing crops not included in the estimate given.
Prairie City, Fairmount, Reasnor, Killduff, Sully, Lynville, Searsboro and Evert, Iowa.....	7	4:30 p. m.	440–1,760	0	140,000	Tornado and hail.....	Property damaged; flooding caused a loss of 20 percent in 2,000 acres of corn.
Clinton, Iowa.....	7	9 p. m.			7,500	Rain, electrical and flood.....	This considered to be the worst hailstorm in this vicinity in years. There was much property damage including automobile tops riddled, neon-tube signs shattered and much glass broken. Crop loss comparatively small and not estimated; path 25 miles long.
Norton County, Kans.....	7	10–10:30 p. m.	16–10		350,000	Heavy hail.....	2 radio towers blown down; electric service interrupted; lightning caused several fires; streets flooded; roads, bridges and culverts badly damaged and railroads reported several washouts.
Cedar Rapids and Marion, Iowa.....	7	P. m.			35,000	Wind, rain, electrical.....	Barn burned.
Moravia, Iowa, vicinity of.....	7				1,500	Electrical.....	Heavy rain caused Buffalo River to overflow. Highway traffic delayed and foundations of buildings washed out in Anamosa. Near Olin on the 7th a barn burned with loss of \$2,000. On the 8th wind damaged several farm buildings and flattened corn. Some livestock killed by lightning.
Anamosa and Olin, Iowa.....	7–8				\$2,000	Wind, electrical and rain.....	Sections of Manchester flooded by overflow of the Maquoketa River. Loss to electric lines, \$2,000. Several trees blown down; buildings damaged and some corn flattened.
Delaware and Manchester, Iowa.....	7–8	6 p. m.			2,000	Wind, electrical.....	Loss in cotton and grain sorghum. Considerable property damage not estimated.
Tahoka, Tex., vicinity of.....	8	3–5 p. m.	15		150,000	Hail and wind.....	Several barns and silos wrecked; houses and garages damaged; trees and electric wires down; path 15 miles long.
Dane and Green Counties, Wis., and vicinities.....	8		10		46,000	Wind.....	Widespread rain caused flooding and much erosion. Many small bridges and 2 railroad bridges west of Monmouth washed out. Southern half of Monmouth flooded. Several roofs blown off and small trees uprooted.
Jackson County, Iowa.....	8				15,000	Wind, rain, electrical.....	75 to 100 trees blown down or uprooted; 20 to 25 buildings damaged, some with roofs torn off; power lines down. Traffic halted and automobiles damaged by fallen trees and branches. Power cut off; windows smashed and awnings ruined.
Williamsport, Pa.....	10	3:25 p. m.	1,320			Wind, electrical.....	Trees blown down; roads blocked; electric service disrupted. Houses struck by lightning causing several fires.
Scranton, Pa., and vicinity.....	10	5:22 p. m.				do.....	Barn blown over, others unroofed; many trees down, 35 reported in 1 place. Barn burned; 5 men stunned when another barn was struck.
Newville, Pa., and vicinity.....	10	7 p. m.			3,500	Wind.....	Electric wires torn down; trees uprooted; buildings, including 5 tobacco sheds and a garage blown down; crops damaged by hail.
Harrisburg, Pa., and vicinity.....	10	P. m.			6,500	Electrical and wind.....	Loss in crops and fruits; power and telephone lines damaged. In Westport a farmer was killed by lightning.
Lancaster, Pa., and vicinity.....	10	do.				Wind, hail, electrical.....	Excessively heavy, local rains, especially on the night of the 14th, in connection with thunderstorms, caused much damage by erosion over the southwestern corner of the State. Much corn was flattened by strong winds. No definite reports of the extent of the damage are available except from Fremont County, where roads were badly damaged and bridge approaches were washed out in the Randolph-Anderson area and Thurman and vicinity.
New York, central and northern counties.....	10			1	250,000	Thunderstorm.....	Highways and roads inundated; lowlands flooded with loss in growing crops.
Mills, Montgomery, Adams, Cass, Fremont, and Page Counties, Iowa.....	13–14				30,000	Wind, rain, and flood.....	
Minnesota, east-central counties.....	14	A. m. and p. m.			38,500	Rain and flood.....	

1 Miles instead of yards.

SEVERE LOCAL STORMS, SEPTEMBER 1941—Continued

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
Duluth, Minn.	14	2:10-4:35 p. m.			\$125,000	Rain and flood	Due to a prolonged wet period, the ground in this area was saturated before this storm started causing nearly all water to run off. 3.30 inches of rain recorded on the 14th with damage resulting mainly from flooding and caving in of basements in houses and business establishments. Much damage to streets and sewer systems; tracks of railroads near the edge of the lake undermined; and electric service interrupted.
Gilman, Minn., and vicinity	14	3:45 p. m.	275		60,000	Possible tornado	Several barns demolished; many residences and buildings damaged; trees uprooted, haystacks scattered, corn flattened, and poultry killed. Length of path 8 miles, from southwest to northeast. A funnel cloud observed 5 miles southwest of Gilman. Property damage, \$50,000; loss in growing crops, \$10,000.
Halbur, Iowa, vicinity of	14	4:30 p. m.			3,000	Wind	Property damaged, \$1,000; corn flattened, \$2,000.
Hornick, Iowa, vicinity of	14				4,000	Rain and wind	Property damaged.
Lancaster County, Nebr., southern portion.	14-15	3 p. m.-5 a. m.	15		20,000	Rain	Creeks overflowed, flooding highways, homes, and fields, causing floods in the Blue and Nemaha Rivers.
Rochester, Albert Lea, and Weaver, Minn., and vicinities.	15	A. m. and p. m.			15,000	Rain and flood	Heavy to excessive rains in connection with a severe thunderstorm caused much damage to highways and bridges. Basements flooded and streets washed out. At Weaver a hillside washed over a highway. Some loss in growing crops.
Hallock, Minn., and vicinity	15	4-6 p. m.			2,000	Thunderstorm and hail.	Storm moved from northwest to southeast and was accompanied by high winds. Property damage, \$500; loss to growing crops, \$1,500.
Denton to Rokeby, Nebr.	15	6-7 p. m.	15		1,000	Hail and rain	Creeks flooded; small hail damage.
Guthrie Center to Dike, Iowa, and vicinities.	15	9 p. m.	12-3		15,000	Tornadic wind.	Trees and branches blown down and windmills and small buildings wrecked, and some corn flattened. Near Dike a new, substantial barn totally wrecked.
Cassville, Wis., vicinity of	15				1,500	Wind	Barn and some buildings damaged.
Sloan, Iowa, vicinity of	21	2 p. m.			900	do	Buildings in small area damaged; boy cut by flying glass.
Ogden, Logan, and Farmington, Utah, and vicinities.	21-22	P. m.			250,000	do	An airplane hangar at the old Municipal airport and a small brick apartment, both under construction, were demolished, together with a number of small airplanes stored in the hangar. A firehouse in north Ogden partly destroyed and many residences in eastern portion of the city damaged. Several hundred shade trees down. Loss in crops, \$100,000. There was extensive loss in apples and ensilage corn crops and in a lesser degree to prunes and pears. Apples were blown from trees and corn flattened. Total estimated loss in Ogden, \$100,000. Two persons injured and power, light, and telephone service was interrupted. Structural damage in a much less degree occurred in Logan and Farmington, with widespread disruption to power and telephone service in the entire area. 20 sections of range grass damaged.
Mesa Service Station, N. Mex.	23	4-5:30 p. m.	15			Heavy hail	Loss in cotton and corn; path 20 miles long.
Lookaba, Okla.	24	5-5:30 p. m.	15		500	Hail and wind	Damage to telephone lines and trees; 2 automobiles damaged by falling signs.
Erie, Pa., and vicinity	25				600	Wind	High winds general over the entire State with considerable loss, especially to apples. Some trees and wires down and property damaged.
Indiana	25				100,000	Tropical disturbance.	This storm of tropical origin, is reported as being the worst in any September in these areas. Maximum wind velocities ranged from 40 to 60 miles per hour. There was severe damage to orchards, telephone, telegraph and electric power lines, and considerable damage to buildings, small craft, automobiles, etc. The amount estimated for damage in western New York, only. The New York State Department of Agriculture reported loss in 1,500,000 bushels of apples.
New York State, counties bordering on Lakes Erie and Ontario and the upper St. Lawrence.	25				2,000,000	Wind	Considerable damage to property and heavy loss to orchardists. Several persons injured. Estimate of damage not given.
Ohio, entire State	25			1		do	

¹ Miles instead of yards.

SOLAR RADIATION AND SUNSPOT DATA FOR SEPTEMBER 1941

[Solar Radiation Investigations Section, I. F. HAND in charge]

SOLAR RADIATION OBSERVATIONS

By SYLVIA NEEDRE

Measurements of solar radiant energy received at the surface of the earth are made at 9 stations maintained by the Weather Bureau and at 12 cooperating stations maintained by other institutions. The intensity of the total radiation from sun and sky on a horizontal surface is continuously recorded (from sunrise to sunset) at all these stations by self-registering instruments; pyrheliometric measurements of the intensity of direct solar radiation at normal incidence are made at frequent intervals on clear days at three Weather Bureau stations (Madison, Wis.; Lincoln, Nebr.; and Albuquerque, N. Mex.) and at the Blue Hill Observatory at Harvard University. Occasional observations of sky polarization are taken at the Weather Bureau station at Madison and at Blue Hill Observatory.

The geographic coordinates of the stations, descriptions of the instrumental equipment, station exposures, and methods of observation, together with summaries of the data obtained, up to the end of 1939, are given in the MONTHLY WEATHER REVIEW for December 1937, April 1941, and September 1941.

Table 1 contains the measurements of the intensity of direct solar radiation at normal incidence, with means

and their departures from normal (means based on less than 3 values are in parentheses). At Lincoln, Madison, Albuquerque, and Blue Hill the observations are obtained with a recording thermopile, checked by observations with a Smithsonian silver-disk pyrheliometer at Blue Hill. The table also gives vapor pressures at 7:30 a. m. and at 1:30 p. m. (75th meridian time).

Table 2 contains the daily total amounts of radiation received on a horizontal surface from both sun and sky for all stations except Fairbanks, Alaska; and also the weekly means, their departures from normal and the accumulated departures since the beginning of the year. The values at most of the stations are obtained from the Eppley pyrheliometer recording either on a microammeter or a potentiometer. If the daily figures for total solar and sky radiation at Fairbanks should be desired, they may be obtained approximately 2 months after the date of the observation by writing to the Solar Radiation Investigations Supervisory Station, Blue Hill Observatory, Milton, Mass.

Beginning with this issue, ultraviolet values obtained at San Juan will be included in table 2. These data represent the radiation below 3132 Ångströms received on a horizontal surface. The unit is 1 milligram calorie, or one-thousandth of a gram calorie (see Kenrick and Ortiz, Measurements of Ultraviolet Solar Radiation in